Product Specification

G240HW01 V0

AU OPTRONICS CORPORATION

☐ **Preliminary Specification**
■ **Final Specification**

Module	24.0” Color TFT-LCD
Model Name	G240HW01 V0

Customer	**Date**	**Approved by**	**Date**
		Vito Huang	2011/12/14
Checked & Approved by		**Prepared by**	
		Jimmy Tsai	2011/12/14

Note: This Specification is subject to change without notice.

General Display Business Division / AU Optronics corporation

Contents

Record of Revision

Version and Date	Page	Old description	New Description	Remark
0.1 2011/02/15	All	First Edition for Customer	All	
0.2 2011/03/10	13		FPWM / PWM Dimming Frequency / 200 / - / 20k / Hz - / Swing Voltage / 0 / 3.3 / 3.6 / Volt - / Dimming Duty Cycle / 10 / - / 100 / %	Add
0.3 2011/05/11	22	Old drawing	Update to new one (adding 3 ribs)	
0.4 2011/06/13	5	Contrast ratio: 3,000 : 1	Contrast ratio: 5,000 : 1	
	6	Color / Chromaticity Coordinates (CIE 1931) Red x / - / TBD / - Red y / - / TBD / - Green x / - / TBD / - Green y / - / TBD / - Blue x / - / TBD / - Blue y / - / TBD / - White x / - / 0.313 / - White y / - / 0.329 / -	Color / Chromaticity Coordinates (CIE 1931) Red x / 0.593 / 0.643 / 0.693 Red y / 0.289 / 0.339 / 0.389 Green x / 0.279 / 0.329 / 0.379 Green y / 0.574 / 0.624 / 0.674 Blue x / 0.105 / 0.155 / 0.205 Blue y / 0 / 0.048 / 0.098 White x / 0.263 / 0.313 / 0.363 White y / 0.279 / 0.329 / 0.379	
	5	Power Consumption / [Watt] / 45 (without inverter, all black pattern)	Power Consumption / [Watt] / 36.3	
0.5 2011/07/07	23	Back bezel has three ribs	Update drawing	
1.0 2011/12/12	5	Power= 36.3 W	30 W	
	6	IF= 120mA	IF= 100mA	
	13	Symbol / Parameter / Min / Typ / Max Vcc / Input Voltage / 10.8 / 12 / 12.6 Iycc / Input Current / - / 2.65 / - PLED / Power Consumption / - / 31.8 / - FPWM / PWM Dimming Frequency / 200 / - / 20k - / Swing Voltage / 0 / 3.3 / 3.6 - / Dimming Duty Cycle / 10 / - / 100 Vanalog / Analog Dimming Voltage / - / N/A / - I_F / LED Forward Current / - / 120 / 130 Operating Life / - / 50000 / - / -	Symbol / Parameter / Min / Typ / Max Vcc / Input Voltage / 10.8 / 12 / 13.2 Iycc / Input Current / - / 2.0 / - PLED / Power Consumption / - / 24 / - FPWM / PWM Dimming Frequency / 200 / - / 20k - / Swing Voltage / 0 / 3.3 / 3.6 - / Dimming Duty Cycle / 10 / - / 100 Vanalog / Analog Dimming Voltage / - / N/A / - I_F / LED Forward Current / - / 100 / - Operating Life / - / 50000 / - / -	

1. Operating Precautions

1) Since front polarizer is easily damaged, pay attention not to scratch it.
2) Be sure to turn off power supply when inserting or disconnecting from input connector.
3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
6) Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.
7) Do not open or modify the Module Assembly.
8) In case if a Module has to be put back into the packing container slot after once it was taken out from the container, take it easily, or the TFT Module may be damaged.
9) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.
10) After installation of the TFT Module into an enclosure, do not twist nor bend the TFT Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.
11) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.
12) Severe temperature condition may result in different luminance, response time and LED life time.
13) The data on this specification sheet is applicable when LCD module is placed in landscape position.
14) Continuous displaying fixed pattern may induce image sticking. It is recommended to use screen saver or shuffle content periodically if fixed pattern is displayed on the screen.

2. General Description

This specification applies to the 24 inch-wide Color TFT-LCD Module G240HW01 V0. The display supports the Full HD - 1920(H) x 1080(V) screen format and 16.7M colors (RGB 8-bits data). All input signals are dual channel LVDS interface.

LED driver board is included. G240HW01 V0 is designed for industrial display applications.

2.1 Display Characteristics

The following items are characteristics summary on the table under 25 □ condition:

ITEMS	Unit	SPECIFICATIONS
Screen Diagonal	[mm]	609.7(24.0")
Active Area	[mm]	531.36 (H) x 298.89 (V)
Pixels H x V		192 0(x3) x 1080
Pixel Pitch	[um]	276.75 (per one triad) ×276.75
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		VA Mode, Normally Black
White Luminance (Center)	[cd/m^2]	300
Contrast Ratio		5000: 1
Optical Response Time	[msec]	25
Nominal Input Voltage VDD	[Volt]	+5.0 V
Power Consumption	[Watt]	30
Weight	[g]	2300 (typical)
Physical Size	[mm]	556.0 (W) x 323.2 (H) x 17.0 (D)
Electrical Interface		Dual channel LVDS
Support Color		16.7M colors (true 8-bit)
Surface Treatment		Anti-Glare, 3H
Temperature Range Operating Storage (Shipping)	[°C] [°C]	0 to +50 -20 to +60
RoHS Compliance		RoHS Compliance

2.2 Optical Characteristics

The optical characteristics are measured under stable conditions at 25□ (Room Temperature):

Item	Unit	Conditions	Min.	Typ.	Max.	Note
White Luminance	[cd/m2]	I_F= 100mA	240	300	-	1
Uniformity	%	9 Points	75	80	-	1, 2, 3
Contrast Ratio			3000	5000	-	4
Cross talk	%		-	-	1.5	5
Response Time	[msec]	Rising	-	16	-	6
		Falling	-	9	-	
		Rising + Falling	-	25	-	
Viewing Angle	[degree] [degree]	Horizontal (Right) CR = 10 (Left)	75 75	89 89	- -	7
	[degree] [degree]	Vertical (Upper) CR = 10 (Lower)	75 75	89 89	- -	
Color / Chromaticity Coordinates (CIE 1931)		Red x	0.593	0.643	0.693	
		Red y	0.289	0.339	0.389	
		Green x	0.279	0.329	0.379	
		Green y	0.574	0.624	0.674	
		Blue x	0.105	0.155	0.205	
		Blue y	0.000	0.048	0.098	
		White x	0.263	0.313	0.363	
		White y	0.279	0.329	0.379	
Color Gamut	%			69	-	

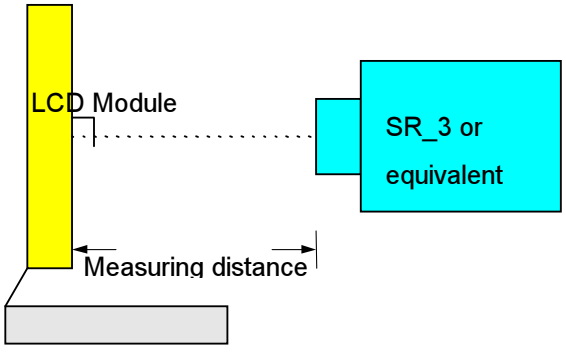
Note 1: Measurement method

Equipment Pattern Generator, Power Supply, Digital Voltmeter, Luminance meter (SR_3 or equivalent)

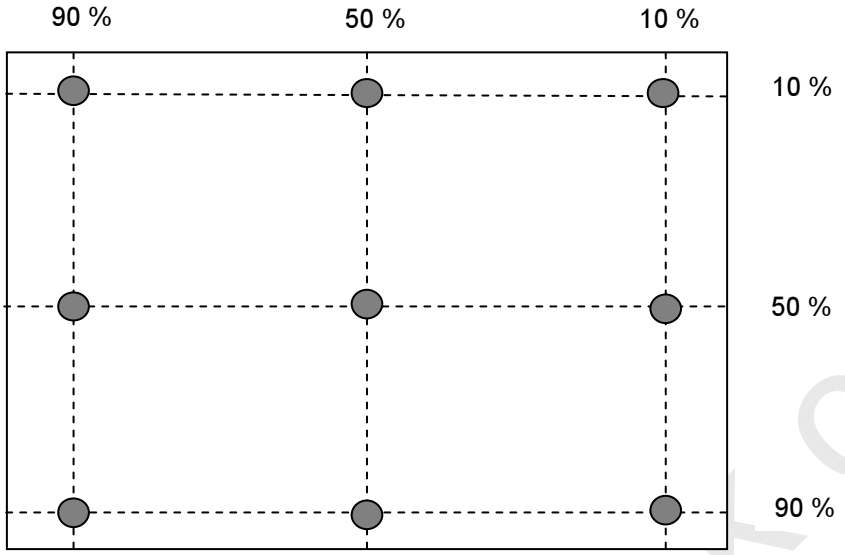
Aperture 1□with 50cm viewing distance

Test Point Center

Environment *< 1 lux*



Note 2: Definition of 9 points position. Display active area:



Note 3: The luminance uniformity of 9 points is defined by dividing the minimum luminance values by the maximum test point luminance

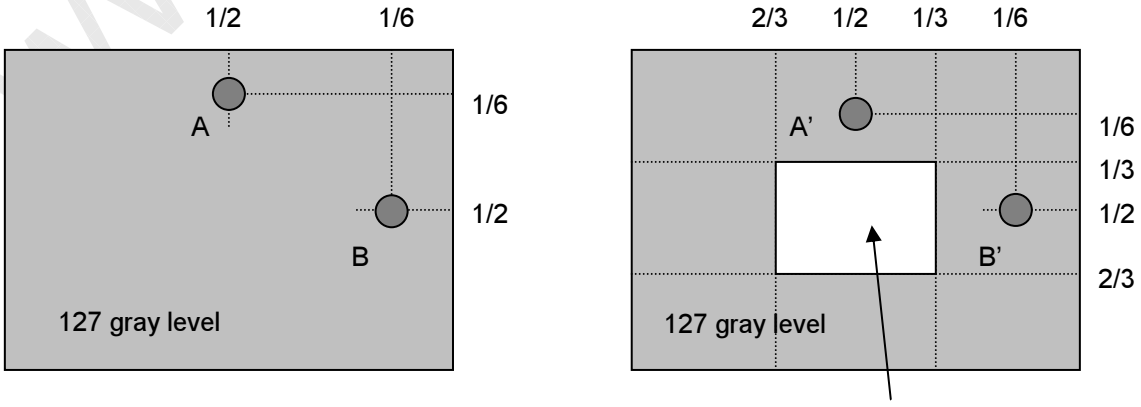
$$\delta_{W9} = \frac{\text{Minimum Brightness of nine points}}{\text{Maximum Brightness of nine points}}$$

Note 4： Definition of contrast ratio (CR):

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the “White” state}}{\text{Brightness on the “Black” state}}$$

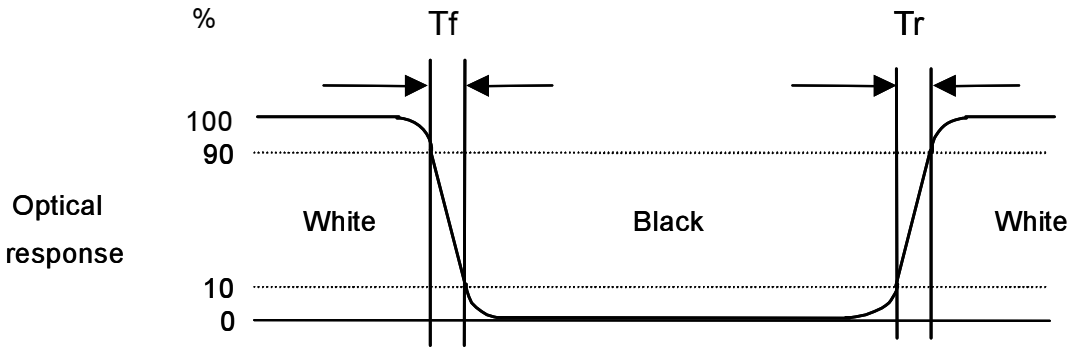
Note 5： Definition of cross talk (CT)

CT = | YB – YA | / YA × 100 (%)
Where
YA = Luminance of measured location without gray level 255 pattern (cd/m2)
YB = Luminance of measured location with gray level 255 pattern (cd/m2)



Note 6: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from “White” to “Black” (falling time) and from “Black” to “White” (rising time), respectively. The response time interval is between 10% and 90% of amplitudes. Please refer to the figure as below.



Note 7: Definition of viewing angle

Viewing angle is the measurement of contrast ratio □10, at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as below: 90° (θ) horizontal left and right, and 90° (Φ) vertical high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated to its center to develop the desired measurement viewing angle.